



Attorney's Docket No. 034345-091

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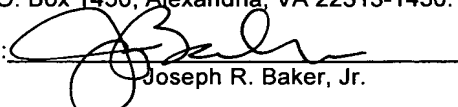
In re Patent Application of

Nathan S. Lewis et al.

Application No.: 10/017,221

Filed: December 13, 2001

For: METHOD AND SYSTEM FOR
DETERMINING ANALYTE ACTIVITY

) Group Art Unit: 1753
) Examiner: ALEXANDER NOGUEROLA
) Confirmation No.: 9894
) Certificate of Mailing
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) P.O. Box 1450, Alexandria, VA 22313-1450.
) By: 
) Joseph R. Baker, Jr.

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, the accompanying information is being submitted in accordance with 37 C.F.R. §§ 1.97 and 1.98.

Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. However, copies of the listed U.S. patents and U.S. patent application publications are not enclosed since it is no longer required according to the July 11, 2003 waiver of the requirement for copies of cited U.S. patents and U.S. patent application publications.

The documents are being submitted after a first Office Action on the merits but prior to the closing of prosecution, therefore under 37 C.F.R. § 1.97(c), the fee set forth in 37 C.F.R. § 1.17(p) is enclosed.

To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned.

09/16/2005 NNGUYEN1 00000038 10017221

01 FC:1806

180.00 DP

Respectfully submitted,

BUCHANAN INGERSOLL PC

Date September 12, 2005

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT****Complete if Known**

Application Number	10/017,221
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First Named Inventor	Nathan S. Lewis et al.
Examiner Name	Alexander Noguerola
Attorney Docket Number	034345-091

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U.S. PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Issue/Publication Date (MM-DD-YYYY)
	6,844,197		Doleman et al.	01-18-2005
	6,841,391		Lewis et al.	01-11-2005
	6,773,926		Freund et al.	08-10-2004
	6,759,010		Lewis et al.	07-06-2004
	6,752,964		Grubbs et al.	06-22-2004
	6,631,333		Lewis et al.	10-07-2003
	6,610,367		Lewis et al.	08-26-2003
	6,571,603		Doleman et al.	06-03-2003
	6,537,498		Lewis et al.	03-25-2003
	6,495,892		Goodman et al.	12-17-2002
	6,467,333		Lewis et al.	10-22-2002
	6,455,319		Lewis et al.	09-24-2002
	6,387,329		Lewis et al.	05-14-2002
	6,331,244		Lewis et al.	12-18-2001
	6,319,724		Lewis et al.	11-20-2001
	6,305,214		Schattke et al.	10-23-2001
	6,244,096		Lewis et al.	06-12-2001
	6,028,608		Jenkins	02-22-2000
	6,007,775		Yager	12-28-1999
	5,948,684		Weigl et al.	09-07-1999
	5,928,609		Gibson et al.	07-27-1999
	5,913,235		Silenius et al.	06-15-1999
	5,832,411		Schatzmann et al.	11-03-1998
	5,807,701		Payne et al.	09-15-1998
	5,627,329		Krishnan et al.	05-06-1997
	5,591,898		Mayer	01-07-1997
	5,469,369		Rose-Phersson et al.	11-21-1995
	5,415,893		Wiersma et al.	05-16-1995
	5,278,501		Guilfoyle	01-11-1994
	5,212,447		Paltiel	05-18-1993
	4,946,562		Guruswamy	08-07-1990
	4,914,608		LeBihan et al.	04-03-1990
	4,424,487		Lauffer	01-03-1984
	3,677,071		Martin	07-18-1972
	20040147038		Lewis et al.	07-29-2004
	20040042933		Lewis et al.	03-04-2004
	20040033165		Lewis et al.	02-19-2004
	20030159927		Lewis et al.	08-28-2003
	20030136960		Goodman et al.	07-24-2003
	20020197390		Lewis et al.	12-26-2002
	20020192117		Lewis et al.	12-19-2002
	20020143477		Lewis et al.	10-03-2002
	20020141901		Lewis et al.	10-03-2002
	20020081232		Lewis et al.	06-27-2002
	20020017125		Lewis et al.	02-14-2002
	20020005580		Goodman et al.	01-17-2002
	20010041366		Lewis et al.	11-15-2001

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FOREIGN PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Country	Date of Publication (MM-DD-YYYY)	STATUS						
					Translation	Partial Translation	Eng. Lang. Summary	Search Report	IPER	Abstract	Cited in Spec
	3728452A1		DE	03-09-1989						X	
	0 794 428A1		EP	10-09-1997							
	61-003039		JP	01-09-1986						X	
	04-002958		JP	01-07-1992						X	
	08-264038		JP	10-11-1996						X	

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	Barisci et al., "Conducting Polymer Sensors," <u>TRIP</u> , Vol. 4, No. 9, pp. 307-311 (September 1996)
	Wehrens et al., Calibration of an array of voltammetric microelectrodes," <u>Analytica Chimica Acta</u> , No. 334, pp. 93-101, 1996
	Williams et al., "Resolving combustible gas mixtures using gas sensitive resistors with arrays of electrodes," <u>J. Chem. Soc., Faraday Trans.</u> , Vol. 92, No. 22, pp. 4497-4504, 1996
	Shurmer et al., "Integrated Arrays of Gas Sensors Using Conducting Polymers with Molecular-Sieves," <u>Sensors and Actuators</u> , Vol. 4, pp. 29-33, 1991
	Slater et al., "Examination of Ammonia Poly(Pyrrole) Interactions by Piezoelectric and Conductivity Measurements," <u>Analyst</u> , Vol. 116, pp. 1125-1130, November, 1991.
	Grate et al., "Acoustic-wave microsensors," <u>Anal. Chem.</u> , Vol. 65, No. 22, pp. A987-A996, November 15, 1993
	Grate et al., "Acoustic-wave microsensors," <u>Anal. Chem.</u> , Vol. 65, No. 21, pp. A940-A948, November 1, 1993
	Cornila et al., "Capacitive sensors in CMOS technology with polymer coating," <u>Sensors and Actuators</u> , Vol., 25, pp. 357-361, 1995
	Johnson et al., "Identification of multiple analytes using an optical sensor array and pattern recognition neural network," <u>Anal. Chem.</u> , Vol. 69, No. 22, pp. 4641-4648, November 15, 1997
	Dickinson et al., "A chemical-detecting system based on a cross-reactive optical sensor array," <u>Nature</u> , Vol. 382, pp. 697-700, August, 1996
	White et al., "Rapid analyte recognition in a device based on optical sensors and the olfactory system," <u>Anal. Chem.</u> , Vol. 68, No. 13, pp. 2191-2202, July 1, 1996
	Harsanyi, "Polymer films in sensor applications," Technomic Publishing Co., Inc., Lancaster, 1995
	Albert et al., "Cross-Reactive Chemical Sensor Arrays," <u>Chem. Rev.</u> , Vol. 100, No. 7, pp. 2595-2626, 2000
	Doleman et al., "Use of compatible polymer blends to fabricate arrays of carbon black-polymer composite vapor detectors," <u>Anal. Chem.</u> , Vol. 70, No. 13, pp. 2560-2564, July 1, 1998.
	Benes et al., "Sensors based on piezoelectric resonators," <u>Sensors and Actuators</u> , Vol. A48, No. 1, pp. 1-21, 1995
	Grate et al., "Surface acoustic-wave vapor sensor based on resonator devices," <u>Anal. Chem.</u> , Vol. 63, No. 17, pp. 1719-1727, September 1, 1991
	Briglin et al., "Progress in use of carbon black-polymer composite vapor detector arrays for land mine detection," <u>Proc. SPIE-Int. Eng.</u> , Vol. 4038, Part One of Two Parts, pp. 530-538, April 24-28, 2000, Orlando, Florida, USA

Examiner
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	Wilmshurt, "Signal recovery from noise in electronic instrumentation," Adam Hilger Ltd. Boston, pp. 60-68, 1985.
	Larry et al., "Thick-film technology: An introduction to the materials," <u>IEEE Transactions on Components, Hybrids, and Manufacturing Technology</u> , Vol. CHMT-3, No. 2, pp. 211-225, June, 1980
	Weissman et al., "1/f noise and other slow, nonexponential kinetics in condense matter," <u>Rev. Mod. Phys.</u> , Vol. 60, No. 2, pp. 537-571, April 1988
	Dziedzic et al, 1/f noise I polymer thick-film resistors," <u>J. Phys. D-Appl. Phys.</u> , Vol. 31, pp. 2091-2097, 1998
	Scofield et al., "Exclusion of temperature fluctuations as the source of 1/f noise in metal films," <u>Phys. Rev.</u> , Vol. 24, No. 12, pp. 7450-7453, December 15, 1981
	Fu et al., "Electrical characteristics of polymer thick film resistors, Part I: Experimental results," <u>IEEE Transactions on Components, Hybrids, and Manufacturing Technology</u> , Vol. 4, No. 3, pp. 283-288, September 1981
	Deen et al., "Low frequency noise in heavily doped polysilicon thin film resistors," <u>J. Vac. Sci. Technol.</u> , Vol. 16, No. 4, pp. 1881-1884, July/August 1998
	Severin et al., "Relationships among resonant frequency changes on a coated quartz crystal microbalance, thickness changes and resistance responses of polymer-carbon black composite chemiresistors," <u>Anal. Chem.</u> , Vol. 72, No. 9, pp. 2008-2015, May 1, 2000.
	Peled et al., "1/f noise I bismuth ruthenate based thick-film resistors," <u>IEEE Transactions on Components, Packaging, and Manufacturing Technology</u> , Part A20, Vol. 20, No. 3, pp. 355-360, September 1997
	Horowitz et al., "The Art of electronics," 2 nd ed. Cambridge University Press, Cambridge, 1989
	Lu, "Applications of piezoelectric quartz crystal microbalances," pp. 19-61, Elsevier, New York, 1984
	De Lacy Costello et al., "Novel composite organic-inorganic semiconductor sensors for the quantitative detection of target organic vapours," <u>J. Matter. Chem.</u> , Vol. 6, No. 3, pp. 289-294 (1996)
	Wampler, "Composites of polypyrrole and carbon black: Part III. Chemical synthesis and characterization," <u>J. Matter. Res.</u> , Vol. 10, No. 7, pp. 1811-1822, July 1995.
	Hongshi et al., "Preparation and characterization of polyaniline-palladium composite films," <u>Mat. Res. Soc. Symp. Proc.</u> , Vol. 369, pp. 581-585, (1995)
	Yassar et al., "Preparation and electroactivity of poly(thiophene) electrodes modified by electrodeposition of palladium particles," <u>J. Electroanal. Chem.</u> , Vol. 255, pp. 53-69, 1988
	Grimshaw et al., "Redox behaviour of polypyrrole films containing naphthoquinone and benzoquinone groups," <u>J. Electroanal. Chem.</u> , Vol. 281, pp.125-132 (1990)
	Iyoda et al., "The 100-Å-order depth profile control of polypyrrole-poly(3-methylthiophene) composite thin film by potential-programmed electropolymerization," <u>J. Phys. Chem.</u> , Vol. 95, No. 13, pp. 5215-5220, (1991)
	Dogan et al., "Conducting polymers of aniline II. A composite as a gas sensor," <u>Synthetic Metals</u> , Vol. 60, pp. 27-30, (1993)
	Elibol et al., "Kinetic studies in the electroinitiated polymerization of N-vinylcarbazole and related conducting polymer composites," <u>J.M.S. - Pure Appl. Chem.</u> Vol. A31, No. 5, pp. 593-611, (1994)
	Huang et al., "Coating of uniform inorganic particles with polymers," <u>J. Colloid. And Inter. Sci.</u> , Vol. 170, pp. 275-283, (1995)
	Selampinar et al., "A conducting composite of polypyrrole II. As a gas sensor," <u>Synth. Metals</u> , Vol. 68, pp. 109-116, (1995)
	Hepel et al., "Effect of the composition of polypyrrole substrate on the electrodeposition of copper and nickel," <u>J. Electrochem. Soc.</u> , Vol. 143, No. 2, pp. 498-505, February, 1996
	Collins et al., "Conductive polymer-coated fabrics for chemical sensing," <u>Synth. Metals</u> , Vol. 78, pp. 93-101, (1996)

Examiner
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Considered

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	Rajeshwar et al., "Carbon black and carbon black-conducting polymer composites for environmental applications," Preprints of papers – American Chemical Society, Division of Fuel Chemistry, Vol. 41, pp. 498-502, (1996)
	Bozkurt et al., "Conducting polymer composites of polypyrrole and polyindene," <u>Synth. Metals</u> , Vol. 82, pp. 41-46, (1996)
	Talu et al., "Electrochemical copolymerization of thiophene and aniline," <u>J. of Polymer Sci.</u> , Part A: Polymer Chemistry, Vol. 34, pp. 2981-2989, (1996)
	Gibson et al., "Biomimicry of smell using organic electroconductive polymer sensor arrays: Applications in an electronic nose," <u>Polymeric Materials Sci. and Eng.</u> , Vol. 76, pp. 515-516, (1997)
	Gibson et al., "Detection and simultaneous identification of microorganisms from headspace samples using an electronic nose," <u>Sensors and Actuators B</u> , Vol. 44, pp. 413-422, (1997)
	EDN, "Design Feature: Electronic Olfactory Sensors," Ed. Jim Lipman, pp. 59-64, December 17, 1998
	George et al., "Progress on Determining the Vapor Signature of a Buried Landmine," <u>SPIE</u> , Vol. 3710, pp. 258-269, April 1999
	La Grone et al., "Landmine Detection by Chemical Signature: Detection of Vapors of Nitroaromatic Compounds by Fluorescence Quenching of Novel Polymer Materials," <u>SPIE</u> , Vol. 3710, pp. 409-420, April 1999
	Zeller et al., "Establishing a Limit of Recognition for a Vapor Sensor Array," <u>Anal. Chem.</u> , 70(19):4191-4201, 1998
	Patrash et al., "Characterization of Polymeric Surface Acoustic Wave Sensor Coatings and Semiempirical Models of Sensor Responses to Organic Vapors," <u>Anal. Chem.</u> , 65(15):2055-2066, August 1, 1993
	Severin et al., "An Investigation of the Concentration Dependence and Response to Analyte Mixtures of Carbon Black/Insulating Organic Polymer Composite Vapor Detectors," <u>Anal. Chem.</u> , 72(4): 658-668, February 15, 2000
	Doleman et al., "Trends in odor intensity for human and electronic noses: Relative roles of odorant vapor pressure vs. molecularly specific odorant binding," <u>Proc. Natl. Acad. Sci. USA</u> , 95:5442-5447, May 1998
	Galal, "Electrocatalytic oxidation of some biologically important compounds at conducting polymer electrodes modified by metal complexes," <u>J. Solid State Electrochem.</u> , 2:7-15, 1998
	Sestak et al., "Selective hydrogen sensors based on Conducting Polymers," <u>SPIE</u> , Vol. 3241, pp. 118-129, 1997
	Fourrier-Lamer et al., "Studies of semiconducting organic polymer-graphite composites from D.C. to microwave frequencies," <u>Synthetic Metals</u> , Vol. 24, pp. 95-105, 1988
	Maxfield et al., "Composite Electrodes Containing Conducting Polymers and Li Alloys," <u>J. Electrochem. Soc.: Electrochemical Science and Technology</u> , 135(2):299-305, February 1988
	Reynolds et al., "Optical Absorption, Luminescence, and Redox Switching Properties of Polyphenylene Derivatives," <u>Mat. Res. Soc. Symp. Proc.</u> , Vol. 328, pp. 191-195, 1994
	Frackowiak et al., "Interaction Between Electroconducting Polymers and C60," <u>J. Phys. Chem Solids</u> , 57(6-8):983-989, 1996
	Toppare, "Synthesis and characterization of conducting polymers and their composites," <u>Tr. J. of Chemistry</u> , Vol. 21, pp. 30-34, 1997
	De Wit et al., "Application of Poly(thienylene vinylene) as a chemiresistor for organic Vapours," <u>Synthetic Metals</u> , Vol. 85, pp. 1303-1304, 1997
	Talaie, "Conducting polymer based pH detector: a new outlook to pH sensing technology," <u>Polymer</u> , 38(5):1145-1150, 1997
	Kuwabata et al., "Charge-Discharge Properties of Composite Films of Polyaniline and Crystalline V2O5 Particles," <u>J. Electrochem. Soc.</u> , 145(8):2707-2710, August 1998
	Torsi et al., "Conducting polymers doped with metallic inclusions: New materials for gas sensors," <u>Sensors and Actuators B</u> , Vol. 48, pp. 362-367, 1998

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